

In re Patent Application of:

SHI ET AL.

Serial No. **09/891,886**

Filed: **06/26/2001**

REMARKS

Claims 1-6, 8-10 and 12-18 are pending in this application.

Claims 1, 2 and 6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitamura in view of Liu and Ozkan.

Claims 3, 4 and 5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitamura in view of Liu as applied to claim 1, and further in view of Stockill.

Claims 8 to 10 and 12 to 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitamura in view of Liu and Ozkan, and further in view of Hessel.

Claim 16 has been amended to overcome the objections of the Examiner and to define more clearly the invention in light of the prior art.

Amendments to Claims

To more clearly emphasize the distinction between prior art, the following amendments have been introduced into:

Claim 16

The text "with a test meter comprising at least two signal conditioning circuits, each corresponding to a different digital CATV standard from a plurality of digital CATV standards" has been added to make this claim consistent with Claims 1 and 10.

The basis for this amendment can be found in the specification, e.g. page 19:

"A bandwidth or digital standard selector module, section or portion 68 is in communication with the RF front end 62 so as to receive the IF output signal from the RF front end 62. The bandwidth selector module 68 includes various signal conditioning circuitry operative to apply a selected digital standard from multiple digital standards",

as well as in Fig. 5, element **68**.

The rest of the claim text has been adjusted accordingly.

With these amendments introduced in Claim 16 it is believed that the grounds for rejection have been removed.

Response to Arguments

The *Universal Test Meter for Digital Signal Distribution Systems* as disclosed in the application provides a substantial advantage over prior art in that it can be applied to analyze the signal quality in CATV and other digital networks operating under different digital standards, such as the European, North American and others.

The test meter provides maintenance personnel with a flexible test instrument for analyzing and diagnosing modern CATV networks which can carry signals according to a variety of digital TV standards and modulation schemes.

Rejection of Claim 1

Claim 1 has been rejected under 35 U.S.C. § 103(a) as being obvious over Kitamura (U.S. Patent 4,303,944) in view of Liu (U.S. Patent 6,222,891) and Ozkan (U.S. Patent 5,946,045), as set forth on pages 6-8 of the outstanding Office Action.

Applicants respectfully disagree and traverse this ground of rejection.

Kitamura's disclosure is a switchable voltage dividing circuit directed at providing control voltages for a tuner in a TV receiver, as illustrated in the preferred embodiments shown Figs. 4, 5A and 5B and described in col. 4, lines 12-67.

Fig. 1 Kitamura displays a simple typical prior art analog TV receiver comprising a tuning voltage supply circuit **13**, which is shown in greater detail in Fig. 2. The tuning voltage supply circuit including components **21-26** and **S₃**, merely controls a voltage for setting a tuning range of a front-end electronic tuner. Kitamura is clearly directed at improving the tuning voltage supply circuit with the addition of semiconductor components, such as diodes **28** and transistors **30**, as seen in Figs. 5a and 5b.

The bandwidth selector module in Claim 1 is absent from the disclosure of Kitamura. Although the Examiner proposes that Kitamura discloses a bandwidth selector module in col. 3, lines 28-31, this reference gives only the voltage ranges required for the tuning voltage supply circuit **13** over which the tuning voltage **B_T** must be varied for receiving American or European system VHF TV channels as laid out in Table 3.

Inspection of Kitamura's Table 1 reveals that only frequency ranges for low-band VHF, high-band VHF, UHF, sound, intermediate

frequency (IF) and field frequency in the U.S. and European TV systems are being considered. Switches $S_1 - S_4$ are used to switch the frequency ranges of the sound IF, the VHF/UHF in the electronic tuner **1** and the field frequency, respectively. Different channel bandwidths for the two TV systems are not mentioned, nor how if at all provision is made for switching between them. In Kitamura the term "bandwidth" as applied to an incoming RF signal cannot be found at all. Thus the tuning voltage supply circuit **13** cited by the Examiner cannot be considered equivalent in any way to the bandwidth selector module in Claim 1.

Claim 1 also defines a bandwidth selector module comprising at least two signal conditioning circuits. The tuning voltage supply circuit **13** cited above does not include one, let alone two or more signal conditioning circuits. It is a single circuit for supplying a bias voltage to an electronic tuner.

The closest equivalent to a signal conditioning circuit as taught by Kitamura in Fig. 1 is the one and only band amplifier **2**. There is no suggestion or motivation given on how and why this would be expanded to two or more, as in Claim 1.

The tuning voltage supply circuit **13** does not perform any of the bandwidth selector module functions recited in Claim 1, in particular:

"the signal conditioning circuits being in communication with said front end so as to receive the acquired digital signal and operative to output a digital channel signal".

It must be pointed out that this is true irrespective of whether the acquired signals or output channel signals are digital (as in Claim 1) or analog (as in Kitamura's disclosure). Kitamura's

tuning voltage supply circuit **13** cannot and does not receive any acquired signals nor output any channel signals.

Kitamura is said to disclose a controller in col. 1, lines 37-48:

"In view of the above, the primary object of the present invention is to provide a television receiver compatible with various television systems in the world which can substantially overcome various problems encountered in prior art television receivers.

According to the present invention, the tuning voltages for tuning in various television systems such as U.S.A. and European system VHF television channels can be obtained by operating a switch which in turn is ganged with other switches required for selecting a particular television system such as U.S.A. or European system."

Applicants are unable to identify a controller in the cited text. Even if a ganged switch were to be broadly interpreted as a controller, which would be a doubtful interpretation for a person skilled in the art, the ganged switch performs a simple tuning voltage function, but not any analysis function as in Claim 1:

"controller for analyzing at least one parameter of the demodulated signal to produce an analysis output including at least one of message error rate MER, I/O data constellation, equalizer tap values and forward error correction FEC readings".

Although in the Office Action it is proposed that "the video output is being interpreted as a parameter to analyze", there is no indication in Kitamura's text or drawings (e.g. Fig. 1) of any analysis function associated with the video signal, nor any of

the parameters of the demodulated signal in Claim 1. Applicants submit that Kitamura omits any disclosure of a controller as claimed.

Regarding the user interface in Claim 1, Kitamura is said to disclose such a feature in col. 2, lines 19-21:

"The television set is provided with four switches **S₁** through **S₄** in order to receive either American or European system television signals".

In contrast, Claim 1 recites:

"a user interface operative to allow a user to select the digital CATV standard and to receive the analysis output containing at least one of video information, audio information, a composite bitstream, closed captioning information and ratings information for display to a user".

While a DC switch as described by Kitamura may be broadly interpreted as a user interface for selecting different TV signal systems, it is not capable of performing the functions of receiving the analysis output for display to a user. Applicants submit that the switch cited in the Office Action cannot be regarded as equivalent to the user interface in Claim 1.

Neither does Kitamura's apparatus comprise a digital modulation decoder. As Kitamura is purely analog in nature, there is no indication of where a digital modulation decoder would be inserted in the television receiver nor is there a motivation for including same.

In summary, there is no evidence in Kitamura of any motivation toward the test meter as in Claim 1. Because of all the omissions in the disclosure of Kitamura, as detailed in the

foregoing, a person skilled in the art is not directed toward all the features of Claim 1.

Liu's disclosure cited in the Office Action is directed to "digital data communication systems and methods for operating such systems in order to synchronize a receiver's timebase to a remote transmitter's" (col. 2, lines 11-14).

Although the TV receivers disclosed by Liu are digital in contrast to Kitamura's analog ones, nevertheless they are targeted primarily at performing various decoder functions other than network testing, such as frame synchronization, convolutional deinterleaving, Reed-Solomon error correction, derandomization (col. 6 lines 56-58) and trellis decoding (col. 7, lines 1-3).

Liu does not disclose a bandwidth selector module having at least two signal conditioning circuits capable of user selection for handling signals of different digital CATV standards, as in Claim 1. In fact Liu makes many references exclusively to only one CATV standard, which is based on a channel bandwidth of 6 MHz, for instance Fig. 3, col. 5, lines 39-42, etc. Thus in Liu's disclosure there is no teaching directed toward the bandwidth selector module with at least two signal conditioning circuits as in Claim 1.

Liu notes that various standards exist (Col. 1, lines 34-64), but does not teach the inclusion of at least two circuits in a receiver, each of which corresponds to a different standard, as in Claim 1. Liu describes being able to receive signals in either a low IF mode or subsampling on a standard tuner IF frequency (Col. 5, lines 34-47). However, these modes all relate to 6 MHz bandwidths and do not teach or disclose the ability to receive two or more standards, e.g. signals in the 7 or 8 MHz

bandwidths as well.

Contrary to what is stated in the Office action third paragraph, page 7, Liu does not disclose a bandwidth selector, which is mentioned neither in the cited text (col. 5, lines 3-7):

"Digitized signals are demodulated and filtered with a combined 64/256-QAM and 8/16-VSB demodulator and are adaptively filtered to remove multipath propagation effects and NTSC co-channel interference",

nor elsewhere. The references Liu makes to bandwidth are mainly in connection with phase lock loops, e.g. col. 14, lines 24 - 49.

None of Liu's TV receivers includes a controller for analyzing parameters of the demodulated signal and a user interface operative to receive an analysis output, both of which are recited in Claim 1.

In summary, there is no evidence in Liu's disclosure of any motivation toward the test meter as in Claim 1. Because of all the omissions in the disclosure of Liu, as detailed above, a person skilled in the art is not directed toward all the features of Claim 1.

Turning now to the third cited prior art referenced, Ozkan teaches a receiver and a method for demodulating and decoding signals in variable broadcast encoding format in Col. 3, lines 7-10:

"a receiver system, according to the principles of the invention, for demodulating and decoding signals of variable broadcast encoding format for display".

The disclosed receiver system does not have a bandwidth selector module with at least two signal conditioning circuits

capable of user selection for handling signals of different digital CATV standards, as in Claim 1. Neither does it have a user interface operative to allow a user to select a digital CATV standard and to receive an analysis output.

While Ozkan's decoder provides a Forward Error Correction validity or lock indication to a controller, the actual FEC readings are not passed on to a user interface, in contrast to in Claim 1.

Applicant respectfully disagrees with the Examiner's interpretation of a single indicator light as constituting or being equivalent to "FEC readings", which is the term recited in Claim 1. According to The American Heritage® Dictionary of the English Language, Fourth Edition, Copyright © 2006 by Houghton Mifflin Company, "reading" is defined "The information indicated by a gauge or graduated instrument". Clearly a single indicator light cannot be considered as a gauge or a graduated instrument. Applicant submits that a term like "FEC lock error indicator" would be used by a person skilled in the arts. Ozkan himself uses the term "error indication" in col. 7, line 66 to col. 8, line 6, but makes no mention of the word "reading" or "data" or similar in relation to the FEC lock error. In any case, Ozkan fails to disclose a selection function similar to the "user interface operative to allow a user to select the digital CATV standard", as in Claim 1.

In the Office Action it is also pointed out in paragraph 1, page 4 that Ozkan teaches a user interface at col. 5, line 54 to col. 6, line 15. This is not accurate, as the excerpt from the cited text shows that FEC validity or lock indication is passed to the controller **17**, not the user interface:

"In addition, unit **50** provides a Forward Error Correction (FEC) validity or lock indication to controller **17**. Reed-Solomon error correction is a known type of Forward Error Correction. The FEC lock indication signals that the Reed-Solomon error correction is synchronized to the data being corrected and is providing a valid output."

Passing indications of error conditions to a controller does not imply that they are visible to a user who is using a user interface. Applicants believe that this argument is still to be considered as valid.

It should be clear that no combination of the disclosures of Kitamura, Liu and Ozkan teaches or suggests all of the features of Claim 1. Of particular note, none of the cited prior art discloses a bandwidth selector module having at least two user selectable signal conditioning circuits for handling signals of different digital CATV standards.

Therefore, the combination of Kitamura/Liu/Ozkan fails to suggest at least this recitation of Claim 1.

Finally, since all three references are directed toward solving three different problems, all distinct from the test meter of claimed invention, Applicants respectfully submit that Claim 1 is not obvious and therefore patentable.

Rejection of Claims 10 and 16

Claim 10 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitamura in view of Liu, and further in view of Hessel, as set forth on pages 10-11 of the outstanding Office Action.

Applicants respectfully disagree and traverse this ground of

rejection.

According to the Office Action paragraph 1 on page 13, independent Claims 10 and 16 are rejected on the same grounds as independent Claim 1 and Claim 8, which is dependent on Claim 1.

Since Claims 10 and 16 claim essentially the same features as in Claim 1, the same arguments countering their rejection can be applied.

Regardless of whether or not one accepts the rather broad interpretation at paragraph 4 of page 6 of the Office Action, which states that the claimed "test meter" includes a conventional television receiver, the combination of Kitamura/Liu/Ozkan fails to suggest all of the recitations in Claims 10 and 16.

Finally, since all three references are directed toward solving three different problems, all distinct from the test meter of instant invention, Applicant respectfully submits that Claims 10 and 16 are not obvious and therefore patentable.

Rejection of Claim 8

According to the Office Action, Hessel discloses the user interface recited in Claim 8 (column 4, lines 38-46).

Turning now to the cited description, Hessel states:

"FIG. 3 describes a field programmable radio frequency communications system that can be programmed by a user to form a digital signal processing system 10 that is adapted to be coupled to a radio frequency receiver and or transmitter subsystem 12 to configure a radio frequency receiver and/or transmitter system to operate with any of a plurality of radio

frequency waveforms or signaling schemes, such as, AM, AME, A3E, H3E, J3E, CW, SSB, M-PSK, QAM, ASK, and angular modulation, such as, FM, PM, FSK, CMP, MSK, CPFSK etc."

The motivation for Hessel's disclosure is to improve radio performance through a refinement of carrier frequency estimate method, which is to various degrees dependent on the type of modulation and signaling used. The radio frequency waveforms or signaling schemes listed are very general, many of which do not even apply to signals as used in a network such as digital CATV. In the absence of more specific teaching, the disclosure contains nothing that directs or suggests a preferred way for extending the capability of a digital CATV network analysis apparatus.

Furthermore, Hessel does not teach a plurality of signal conditioning circuits, each such circuit corresponding to one digital CATV standard, as in Claim 1.

Claim 8 is dependent on Claim 1 with an additional recitation that the user interface is operative to allow a user to select one digital modulation decoding scheme from a plurality thereof. The claimed user interface also comprises the output of analysis results, which has no counterpart in Hessel's disclosure.

Accordingly, Claim 8 cannot be deemed obvious for one of ordinary skill in the art from the disclosures of Kitamura and Liu in view of Hessel.

Rejection of Claims 2-6, 8-9, 12-15 and 17-18

Applicants respectfully disagree and traverse the grounds for rejection.

Claims 2-6 and 8-9 are deemed to be patentable by virtue of their dependency on patentable Claim 1.

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Claims 12-15 are deemed to be patentable by virtue of their dependency on patentable Claim 10.

Claims 17-18 are deemed to be patentable by virtue of their dependency on patentable Claim 16.

Conclusion

Finally, in view of the foregoing arguments that the cited prior art fails to teach or suggest the various combinations of features of the claimed invention, favorable reconsideration of this application, and a Notice of Allowability of all of Claims 1-6, 8-10 and 12-18 is respectfully requested.

Should any minor informalities need to be addressed, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 50-1465 and please credit any excess fees to such deposit account.

Respectfully submitted,

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DATE: December 1, 2008